

In re Application of: Rottenberg et al
Serial No.: 10/597,666
Filed: June 20, 2007
Office Action Mailing Date: March 24, 2009

Examiner: Susan Shan SU
Group Art Unit: 3761
Attorney Docket: 34955

In the Claims:

1. (Currently Amended) A differential pressure regulating device, the device comprising:

a shunt being for positioned positioning in the septum of a heart, between a left atrium and a right atrium, to enable fluids to flow between said left atrium and said right atrium, and

an adjustable flow regulating mechanism, being configured to selectively cover an opening of said shunt while keeping said cover shunt always ajar open, to regulate and keep continuous the flow of fluid through said shunt in relation to a pressure difference between said left atrium and said right atrium.

2. (Canceled)

3. (Currently Amended) The pressure regulating device of claim 1, wherein said shunt is configured for protruding into said left atrium and/or said right atrium when positioned within said septum~~flow regulating mechanism is to be continually adjustable in accordance with at least one pressure threshold~~.

4. (Previously Presented) The pressure regulating device of claim 1, wherein said flow regulating mechanism is to be continually adjustable in accordance with changes in pressure difference between said left atrium and said right atrium.

5. (Original) The pressure regulating device of claim 1, comprising a control mechanism; to remotely control said flow regulating mechanism.

6. (Previously Presented) The pressure regulating device of claim 5, wherein said control mechanism includes one or more mechanisms selected from the group consisting of: wires, lines, springs, pins, cables, magnets, hooks, latches,

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electric mechanisms, pressure transducers, telemetry mechanisms, wireless mechanisms, pneumatic mechanisms, and motors.

7. - 8. (Canceled)

9. (Original) The pressure regulating device of claim 1, wherein said flow regulating mechanism is to close the opening of said shunt.

10. (Currently Amended) A differential pressure regulating device, the device comprising:

a shunt ~~being for positioned positioning~~ in the septum of a heart, between a left atrium and a right atrium, to enable fluids to flow between said left atrium and said right atrium, and

an adjustable flow regulating mechanism, being configured to selectively cover an opening of said shunt while keeping said ~~cover shunt~~ always ~~ajar open~~, to regulate and keep continuous the flow of fluid through said shunt in relation to a pressure difference between said left atrium and said right atrium, wherein said flow regulating mechanism includes one or more mechanisms selected from the group consisting of a disk valve connected to a twisting spring, a pre-shaped flexible wire, a cone connected to a compression spring, a leaflet valve, a flexible disk having an adjustable, substantially central hole, a first balloon having liquid therein and connected through a tube to a second balloon, a first balloon having liquid therein and connected through a tube to a reservoir having a piston moving against a compression spring, and a first balloon having liquid therein and connected through a tube to a reservoir having a piston moving in accordance with a controlled activation system.

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11. (Currently Amended) A differential pressure regulating device, the device comprising:

a shunt ~~being for positioned positioning~~ in the septum of a heart, between a left atrium and a right atrium, to enable fluids to flow between said left atrium and said right atrium;

an adjustable flow regulating mechanism, being configured to selectively cover an opening of said shunt while keeping said ~~cover shunt~~ always ~~ajar open~~, to regulate and keep continuous the flow of fluid through said shunt; and

a control mechanism to be coupled to said adjustable flow regulating mechanism, to remotely activate said adjustable flow regulating mechanism.

12. (Original) The pressure regulating device of claim 11, wherein said control mechanism includes one or more mechanisms selected from the group consisting of one or more wires, lines, springs, pins, cables, magnets, hooks, latches, electric mechanisms, pressure transducers, wireless mechanisms, telemetry mechanisms, pneumatic mechanisms, and motors.

13. – 14. (Canceled)

15. (Currently Amended) The pressure regulating device of claim 11, wherein said ~~shunt is configured for protruding into said left atrium and/or said right atrium when positioned within said septum~~ ~~flow regulating mechanism is to be continually adjustable in accordance with at least one pressure threshold~~.

16. (Original) The pressure regulating device of claim 11, wherein said flow regulating mechanism is rigid, said flow regulating mechanism position being directly controlled by said control mechanism, thereby substantially determining the precise size of the opening of said shunt.

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17. (Currently Amended) An in-vivo pressure control method, the method comprising:

implanting a differential pressure regulation device including a shunt in a septum between a left atrium and a right atrium of a heart in ~~said a body of a subject in need,~~

deploying a flow regulating mechanism,
controlling a setting of said flow regulating mechanism according to changes in pressure differences between said left atrium and said right atrium, and
maintaining a flow between ~~said chambers~~ left atrium and said right atrium through all pressure differences between said left atrium and said right atrium.

18. (Original) The pressure control method of claim 17, comprising remotely controlling said flow regulating mechanism positioning.

19. (Previously Presented) The pressure control method of claim 17, comprising reducing a pressure difference between said left atrium and said right atrium.